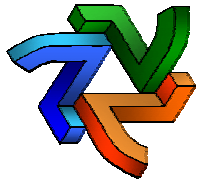


WBS 2.5 *Near Detector Installation*

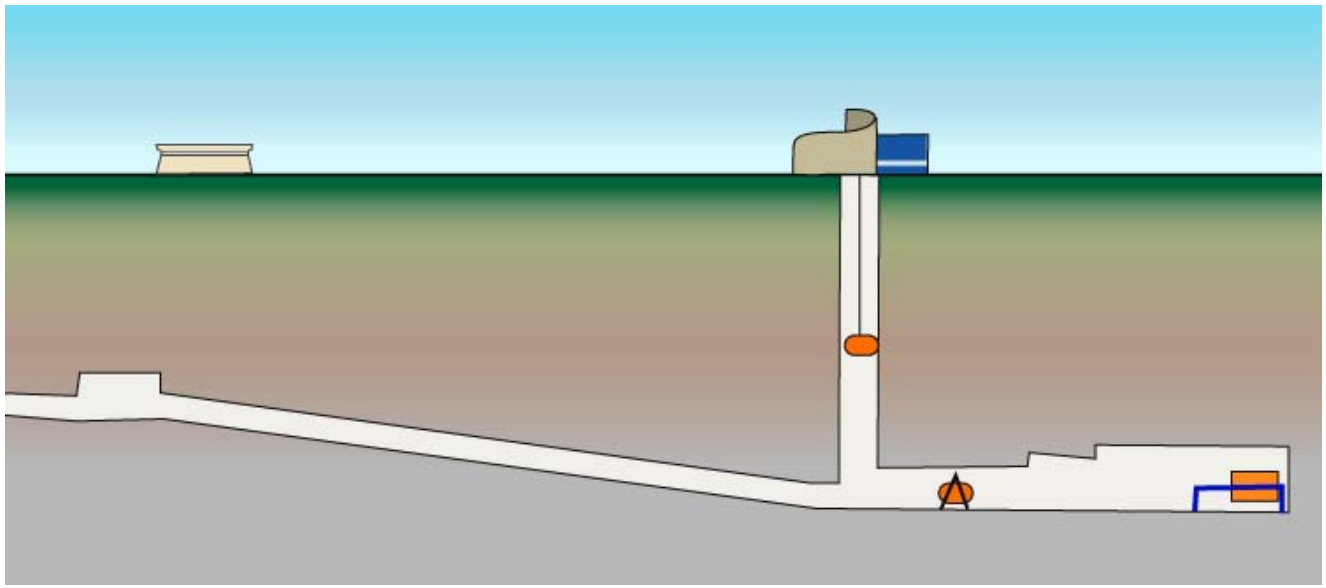
Co-Level 2 Manager

Cat James

April 8 - 9, 2003

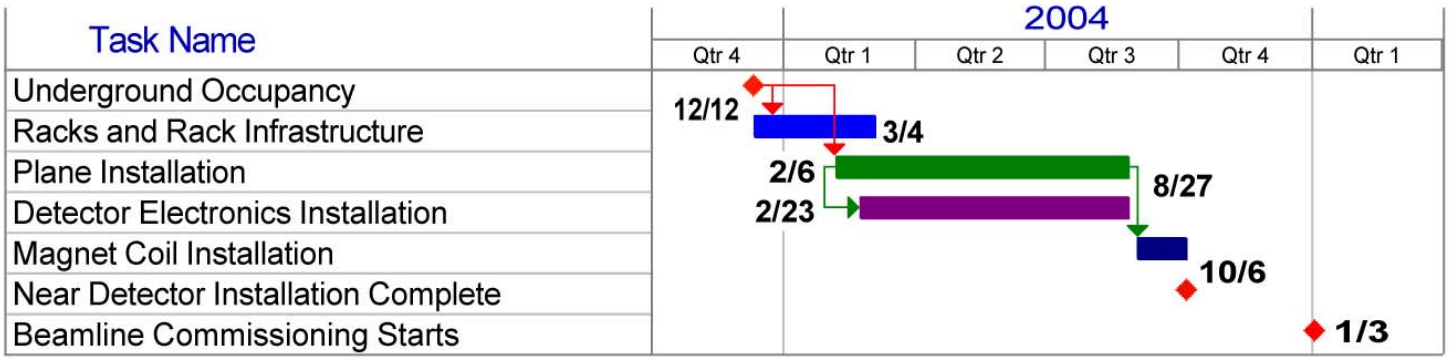
Outline

- Cost & Schedule update
- Technical Progress and Status
- Activities from last & for next 6 months
- Summary

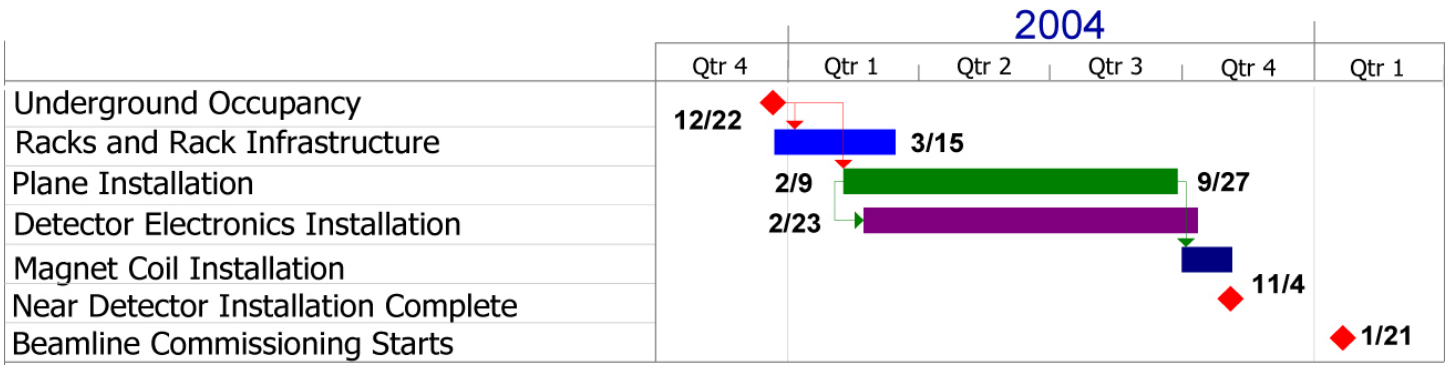


Cost & Schedule

Last Review – presented the proposed change to the schedule



CR submitted and processed 2/03 -- returned ~ $500k to contingency
Slight adjustments to the schedule as shown in Dec '02, but generally the same



Technical Progress

- Plan shown in December concentrated on steel plane handling

  No change in steel plane installation manpower or daily schedule

  - 6-man crew + supervisor, PPD technician staff + 1 BSS driver
- Detector cabling and checkout

  No details on cabling & electronics installation was given at the last review – details had not yet been discussed within the collaboration

  - UK groups, who supply the phototubes, fiber cable and DAQ, to send manpower to help install these systems – 1 technician and 1 DAQ expert for 6mo to 1 yr, plus additional collaborators for shorter terms RAL, Oxford, Sussex
  - Electronics and associated cable installation, and overall system checkout performed by various MINOS collaborators, with a few institutions concentrating their efforts on ND installation and commissioning: ANL, IIT, FNAL, U Pitt, U Wis

Plane Installation versus Readout Installation

As discussed with Collaboration

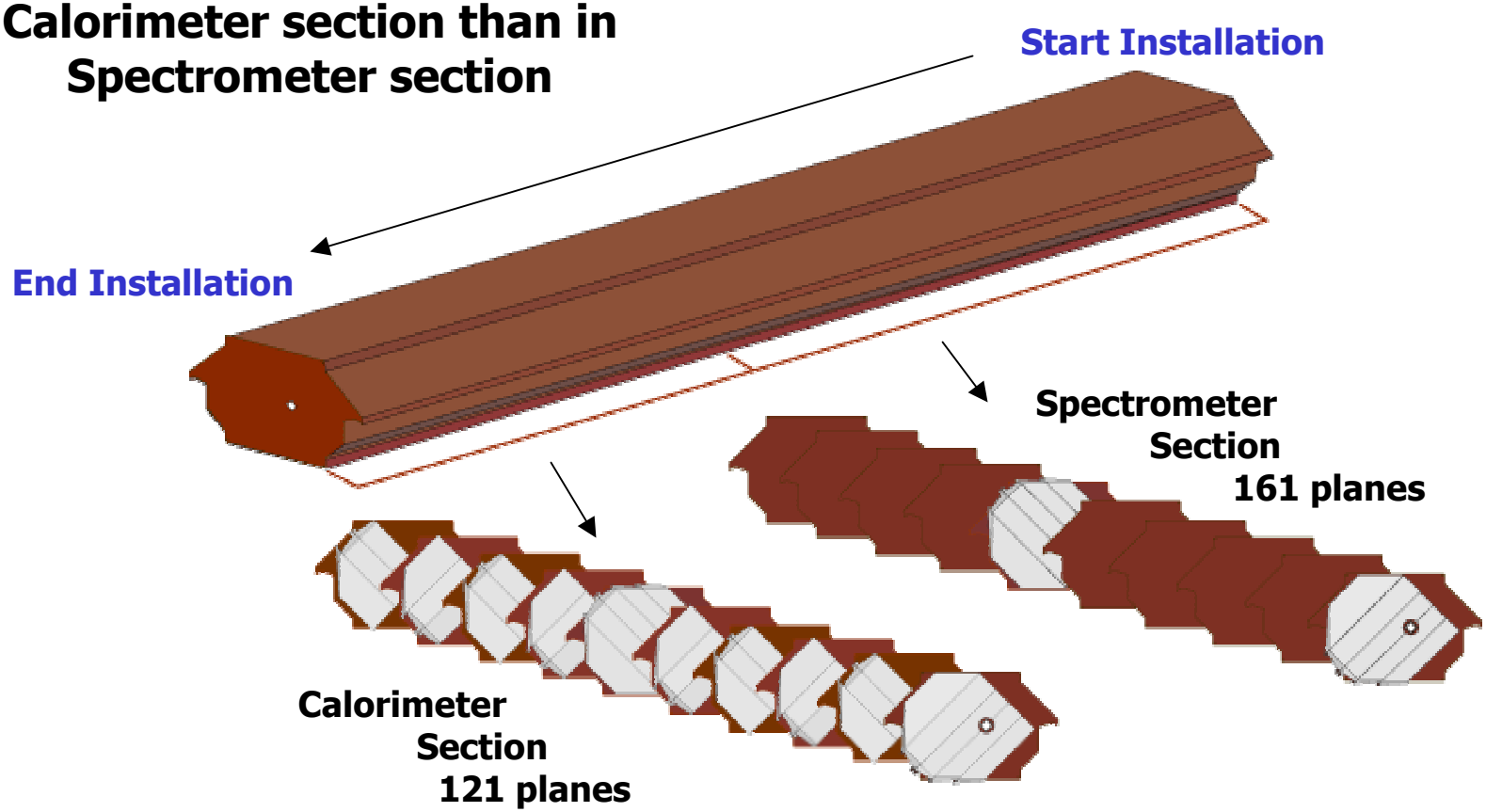
		Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct
Underground Access at MINOS	0 days									
Move Racks underground	10 days									
Rack Electrical Work	29 days									
Install Planes	**139 days**									
Install planes 281:231 (50)	25 days									
Install planes 230:196 (35)	17 days									
Install planes 195:151 (45)	22 days									
Install planes 150:111 (40)	20 days									
Install planes 110:81 (30)	15 days									
Install planes 80:51 (30)	15 days									
Install planes 50:0 (50)	25 days									
Install Readout	**136 days**									
For Planes 281:231	5 days									
For Planes 230:196	4 days									
For Planes 195:151	6 days									
For Planes 150:111	8 days									
For Planes 110:81	12 days									
For Planes 80:51	15 days									
For Planes 50:0	22 days									
Magnet Coil Installation	35 days									
Beamline Commissioning	0 days									

- 2 planes per day
- 1.5hr / 1 hr cabling time per Full / Partial plane (Readout and LI)
- 1 day of integration work for every added FE crate, to attain stable readout
- 1 day of integration work for every DAQ Branch added

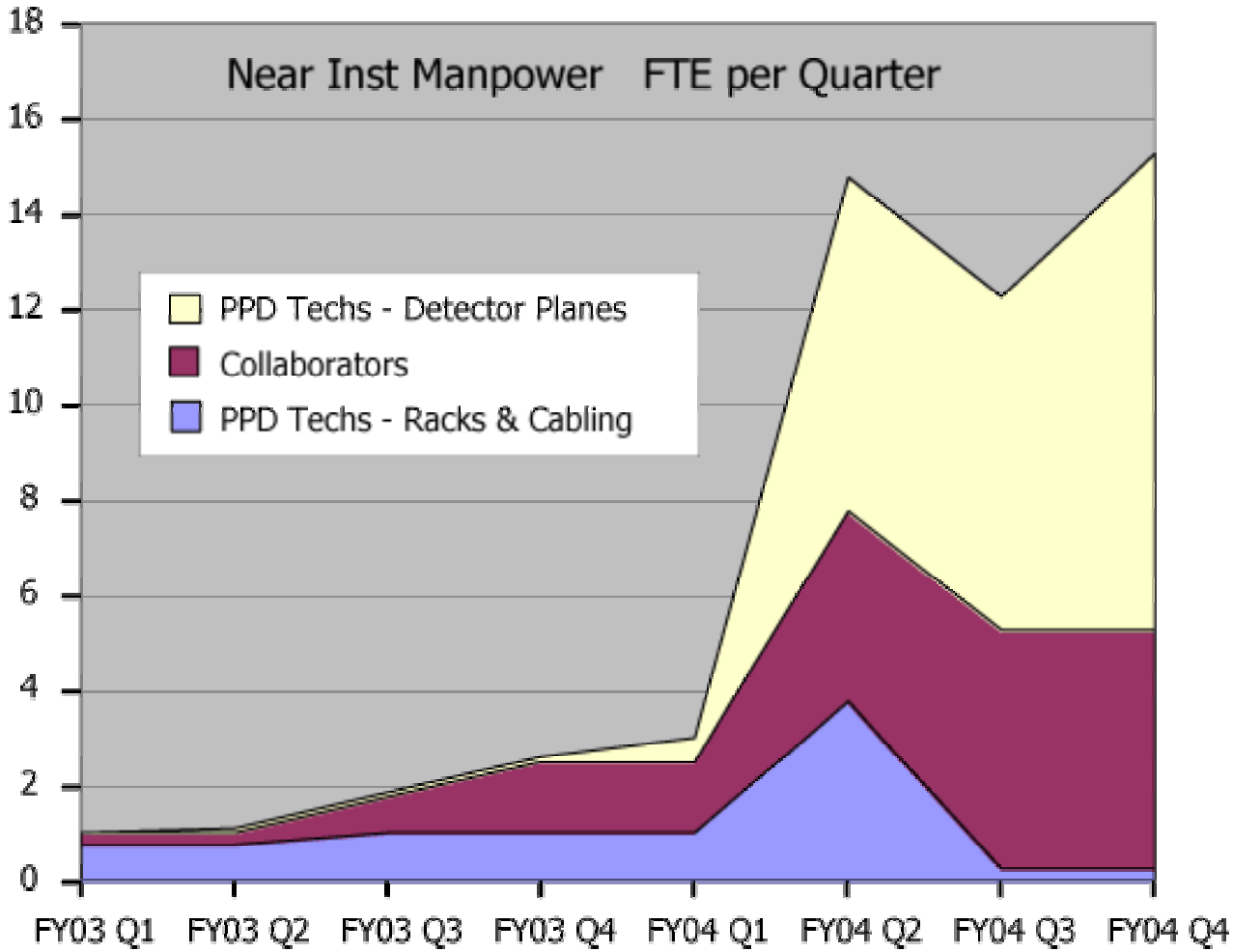
Plane Installation versus Readout Installation

As discussed with Collaboration

More cabling and electronics per week in Calorimeter section than in Spectrometer section



Manpower


Near Inst Manpower FTE per Quarter
PPD Techs - Detector Planes
Collaborators
PPD Techs - Racks & Cabling
18
16
14
12
10
8
6
4
2
0
FY03 Q1
FY03 Q2
FY03 Q3
FY03 Q4
FY04 Q1
FY04 Q2
FY04 Q3
FY04 Q4

Work during 2003

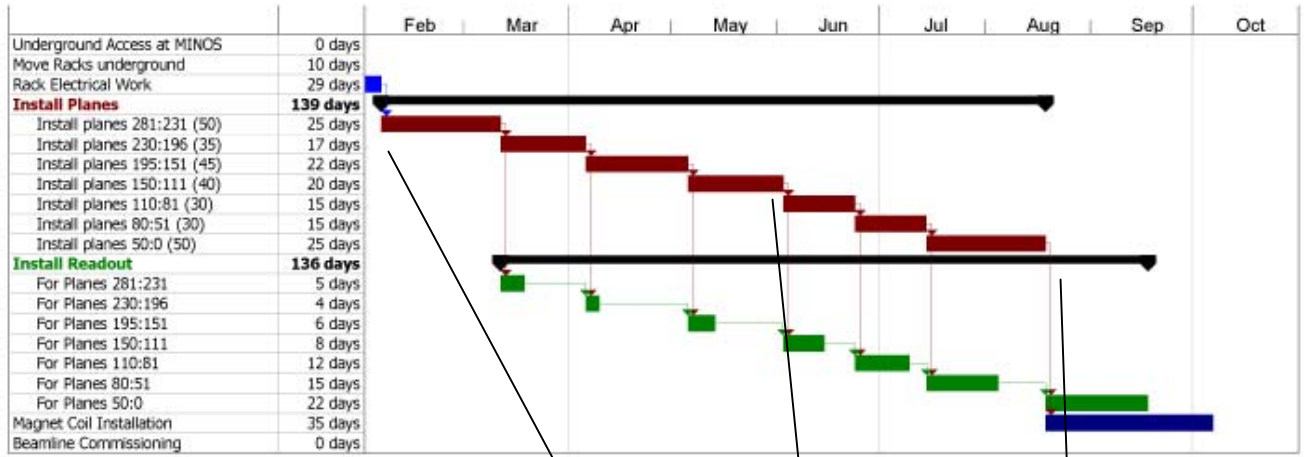
- **Detector Racks**
  - **Assemble all racks at New Muon. Have them ready to go underground by 12/03**
  - **This includes water piping, internal AC circuit distribution, Rack Protection System, heat exchangers, fans, and all electronics crates and DC power supplies**

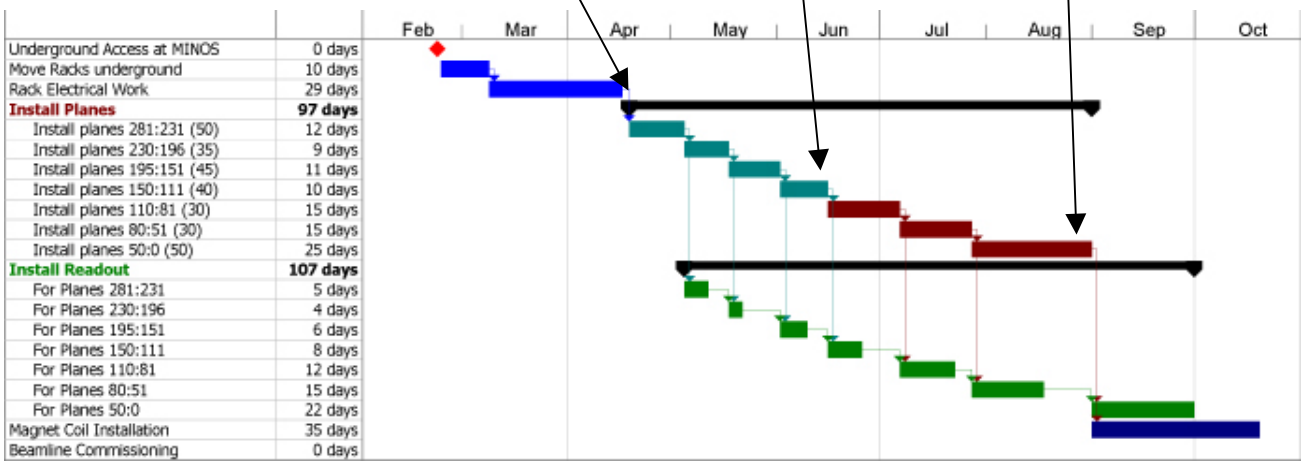
- **Detector readout infrastructure prototype**
  - **Set up a few racks along-side detector planes at New Muon, with cable support systems, just as it will be underground. Examine the cabling plans and access around racks - make any adjustments**
  - **In progress – cabling practice scheduled for week of 4/21**

Safety

- All steel plane handling HAs are being reviewed. They were created for the Plane pre-Assembly, and cover many – but not all - aspects of the procedures needed for installation underground
- Detector Electronics and Readout Systems – PPD standards applied
  - PC board reviews have been ongoing – fusing, grounds
  - Cable reviews in progress - flammability
  - Power distribution systems now under design, following PPD standards – fusing, electrical safety
  - installations of readout systems within racks will be inspected and reviewed upon completion in New Muon, before moving racks underground – inspections were a main part of previous PPD Operational Readiness Clearance
- Training
  - working with M. Andrews on training requirements and schedule for collaboration members
  - technical staff currently up to date on underground access training

Delay in date of BO





Install Spectrometer on double shift

Summary

- Plans - procedures and manpower - for installation of the detector planes in 2004 are well understood
  - We will work on HAs and written procedures between now and BO
  - A specific technical crew has trained for handling the detector planes – not interchangeable, not reducible
- Plans for collaboration manpower during installation and commissioning are in progress
  - Working out details, lists of real people
  - The upcoming cabling practice will add detailed understanding of a main portion of installation
- Rack infrastructure work has begun
  - Need to keep it on track to have all racks ready for the detector when it goes underground